DEPARTMENT OF ENERGY
HOISTING AND RIGGING TECHNICAL ADVISORY COMMITTEE
MEETING MINUTES
Germantown, MD
May 13-14, 2008

The Chairman, Pat Finn, Department of Energy (DOE-HQ, HS-11) called the meeting of the DOE Hoisting and Rigging Technical Advisory Committee (HRTAC) to order. Mr. Finn welcomed attendees and introductions were made. A brief review of recent events was conducted. Following the introductory remarks, the following presentations were made:

1. Mr. Michael Merker of the American Society of Mechanical Engineers (ASME) gave a presentation on the background of ASME, the organizations standards policy, and opportunities to work in cooperation with ASME in future revisions to DOE-STD-1090-2007, *Hoisting and Rigging*. Recent changes have been made to DOE-STD-1090-2007 to better reflect ASME copyright concerns and to more clearly credit ASME for use of their copyrighted materials. However, future revisions to the DOE-STD-1090 will need to go further in this regard by incorporating ASME standards by reference within applicable chapters and providing DOE-specific requirements that go beyond or relax the referenced ASME standard requirements. The standard will also include several chapters that are DOE-specific in areas where neither OSHA nor ASME have applicable standards (e.g., Critical Lifts, Preengineered Production Lifts, and Hostile Work Environments).

2. Mr. Dana Morgan (Hanford Site) gave a presentation on recent revisions to the Hanford Site's Hoisting and Rigging Manual that invoke a similar approach to that described above. Chapters for which there are applicable ASME standards incorporate these standards by reference, with exceptions noted for exceeding or relaxing the cited ASME standards. There are also a number of areas for which entire chapters remain largely unchanged and do not rely on ASME source material as there are no ASME standards addressing these specific needs at the Hanford Site (e.g., Critical Lifts, Hostile Work Environments). Mr. Morgan's presentation resulted in an in-depth discussion of a path forward for DOE-STD-1090. The merits of maintaining a single standard comprised of multiple chapters addressing all facets of hoisting and rigging as opposed to an approach whereby each chapter is broken out into a separate standard was discussed. A motion was passed to revise the DOE-STD-1090-2007 in one volume as opposed to breaking each chapter down to separate standards.

3. Mr. Steve Waisanen from Morris Material Handling, Inc., made a presentation on advances in single failure proof crane technology. His presentation, along with a table top crane model, showed how redundant safety systems on such cranes prevent crane overload or failure.

4. Mr. Mike Cutshall (Savannah River Site) briefed the committee on prospective changes to ASME B30.2, *Overhead and Gantry Cranes,* and ASME B30.11, *Monorails and*

Underhung Cranes. Draft revisions focus upon proposed changes to provisions addressing crane inspections and operator qualifications.

5. Mr. Dana Morgan made a presentation on a December 1, 2006 incident at the Hanford Site in which the upper section of a 150' multi-section lighting tower started to disengage from its lower section as the tower mast was being lifted from a horizontal to a vertical position. The cause of the partial disengagement of the upper sections of the tower was two-fold. First, the tower sections were not fully engaged nor bolted together on the ground when they were assembled. Secondly, the rigging, as configured, effectively pulled the two sections apart when the upper connection, intended to slide upon the mast and provide load stability, unexpectedly choked down upon the mast as it lifted vertically thereby pulling the sections apart. Field changes to the approved critical lift rigging plan by the rigger had not been reviewed or approved by higher authority and resulted in this unstable rigging configuration. The Hanford Site has since tightened their procedures to ensure appropriate approvals for modifications of approved rigging plans.

6. Mr. Jim Healy (SLAC) led a discussion on training requirements for crane maintenance personnel and operators of forklifts using fork attachments for lifting. The discussion focused on comparing the training procedures in place at various sites for maintenance personnel and forklift operators. In summary, the training for crane maintenance personnel is not as comprehensive at it is for operators and is generally limited to addressing the actual crane operations performed during crane maintenance. For forklift operators, the committee consensus was that recent revisions to OSHA's forklift regulations adequately addressed the training requirements for forklift operators, whether or not they use fork attachments.

7. Mr. Noah Connell (OSHA) gave a comprehensive overview of OSHA ongoing efforts to revise the agency's standards addressing cranes and derricks in construction. He said that a proposed rule is expected to be published later this year and that its regulatory language will reflect input provided to OSHA by the Cranes and Derricks Negotiated Rulemaking Advisory Committee (C-DAC). Among the significant changes to the current rule is an expanded definition of cranes as well as revised procedures for the assembly/disassembly or cranes, work in the proximity of power lines, operator certification, and crane inspections. The CDAC consensus document is available for viewing in its entirety at:
http://dockets.osha.gov/vg001/V046A/00/48/45.PDF

8. Messrs. Joe Scolaro and Tony Alba (American Drill Bushings) gave a presentation on hoist ring use and application. The presentation provided an overview of hoist ring applications, general hoist ring usage, maintenance, "do's and don'ts," along with excerpts from the company's photo library.

9. Mr. Mike Cutshall discussed alternatives for addressing forklifts in the next edition of DOE-STD-1090. The first alternative was to delete the forklift chapter in its entirety as forklift operations do not generally involve lifting freely suspended loads are therefore

not commonly considered "hoisting and rigging." The second alternative was to retain a chapter that incorporates by reference the ITSDF B56 forklift standards with DOE-specific enhancements and exceptions. The committee members supporting this view stated that forklift operations, though more correctly classified as materials handling and not hoisting and rigging, are generally handled by hoisting and rigging subject matter experts at their respective sites and are the source of a significant number of mishaps across the DOE complex. A motion was passed to adopt the second alternative.

10. Mr. Dana Morgan gave a briefing on efforts he recently started to develop a hoisting and rigging course for DOE oversight personnel, management, and contract administrators.

11. Mr. John Reed (Lawrence Livermore National Laboratory) discussed possible means for documenting inspections of portable lifting equipment and rigging hardware. Whereas fixed lifting equipment (e.g., overhead cranes) and mobile cranes are required to have paper documentation of required inspections readily available, this may prove difficult or impractical for portable items (e.g., slings, rigging hardware, manual-lever-operated hoists). This was addressed in the 2007 revisions to DOE-STD-1090-2007 in Chapter 11 for slings, wherein it states *"These records may include an external coded mark on the individual sling tag (e.g. date, annually changed color stripe, etc.) indicating both periodicity and the satisfactory completion of the required inspection..."* Mr. Reed proposed that future revisions to the Standard allows for similar records of inspection for portable lifting and rigging equipment. The committee was in general agreement with this proposal and it was agreed that the next revision to the Standard would reflect this in the text modifying or clarifying incorporated ASME standards (See item 1 above).

12. Mr. Ken Richter (Oak Ridge, Y-12) discussed the possible need for Nationally Recognized Testing Laboratory (NRTL) certification for newly purchased hoists and cranes. His view was that when taken together, OSHA, the National Electric Code, and DOE Electrical Safety requirements mandate certification, as complete systems, of newly purchased hoists and cranes. In many cases, this requires paid on-site visits by NRTL staff to evaluate the completed installation of lifting equipment as many such installations are custom built for their specific application and are not NRTL certified by the manufacturer. While many such systems include a number of NRTL certified components, they are not certified as a completed system due to lack of clear NRTL standards addressing them or the manufacturer's view that one-of-a-kind installations do not warrant NRTL certification. Furthermore, there is not a consensus within the industry that an overhead crane constitutes "electrical equipment" within the intended scope of the above cited references. There was considerable discussion and disagreement among committee members as to the need for NRTL certification for completed crane installations. It was agreed that Mr. Richter would further research this topic and provide proposed draft language to DOE-STD-1090, Appendix A, *Procurement Guidelines,* for future committee consideration.

13. Mr. Jay Larson (DOE, Office of Science) gave a presentation on proposed revisions to ORPS keywords to facilitate better data analysis of reportable events involving hoisting and rigging and forklift operations. Currently, these events are consolidated under one keyword, 8F, addressing a broad spectrum of industrial operations. It was proposed to create separate keywords for both hoisting and rigging and forklift operations. He provided draft definitions for these proposed keywords and solicited feedback from the committee. There was broad support for his proposal but insufficient time to address all committee comments on the proposed keyword definitions. It was agreed that these keyword definitions would be distributed electronically to the committee and that members could submit their proposed revisions to the keyword definitions. It was further noted that the Office of Environmental Management (EM) had already performed an analyses of forklift events dating back to January 2004 by thoroughly examining all records categorized under the 8F keyword. This had taken considerable effort, but resulted in a valuable "look-back" upon past events involving forklifts. Mr. Larson expressed a willingness to do the same for Hoisting and Rigging once a keyword definition has been agreed upon.

14. Mr. Graham Brent (National Commission for the Certification of Crane Operators (NCCCO)) made a presentation on the status of the NCCCO program. He reviewed the existing certification programs for mobile, tower and overhead cranes as well as ongoing efforts to develop programs for riggers and signalpersons. He further stated that programs for certification of operators of articulating (knuckle) boom cranes and crane inspectors will be started in the near future. He further reviewed the growth of the program in terms of numbers of tests administered as well as progress on the legislative front at the state level with respect to crane operator certifications. Comprehensive information on the NCCCO program is available at their website, www.nccco.org .

15. Mr. Ken Richter made a presentation on what he felt to be confusion on the part of some users of the Standard between Preengineered Production Lifts as covered by Chapter 3 and Critical Lifts (and more specifically recurrent critical lifts) as covered in Chapter 2. Recent changes to Chapter 2 addressed recurrent critical lifts, but apparently did not go far enough in making this distinction clear. There was broad committee consensus with regard to Mr. Richter's concerns. There was further consensus that clarification of this issue is more likely to require future revisions to Chapter 3 than to Chapter 2. As this chapter was largely an adoption of procedures developed at the Pantex Plant to address their specific needs, Mr. Mike Baxley (Pantex) agreed to review Chapter 3 in detail and provide recommendations to the committee to resolve this issue.

16. Mr. Claude Robison (ORNL) made two proposals for changes to DOE-STD-1090-2007. The first was to delete the sentence found in Sections 3.4.b.1; 4.4.b.1; 5.4.b.1; 6.5.b.1; 7.5.b.1; 8.4.b.1; 11.6.b.1 of the Standard which states *"Semi-permanent and inaccessible locations where frequent inspections are not feasible shall have periodic inspections performed."* His reasoning was that both frequent and periodic inspections are equally infeasible in inaccessible locations. The committee agreed and the motion passed. The second proposal was to modify Section 7.1.5 which states, "*Bridge trucks*

shall be equipped with sweeps which extend below the top of the rail and project in front of the truck wheels" such that it was clear that this requirement only pertains to cranes falling within the scope of ASME B30.2. The committee also supported this proposal and the motion was passed.

17. In light of the considerable changes that will be made to the Standard to address ASME copyright concerns noted in Item 1 above, it was suggested that various individual committee members be assigned chapters to review and propose appropriate changes. The intended format of chapters incorporating ASME standards by reference is a "boilerplate" paragraph citing the adopted standard followed by exceptions for DOE operations. These exceptions can be either more rigid requirements than ASME or relaxations of ASME requirements, with due consideration of the fact that existing OSHA standards must be followed. Considering the degree of anticipated change that this will entail, it was also considered prudent to thoroughly review the DOE specific chapters that do not rely on ASME source material. Suggested revisions to these chapters should use the existing chapters in the Standard as a template.

    Assignments for these chapter reviews are as follows:

    Chapter 2, *Critical Lifts* (Ken Richter, Y-12)
    Chapter 3, *Preengineered Production Lifts* (Mike Baxley, Pantex)
    Chapter 4, *Lifting Personnel* (Lynn Holt, INL)
    Chapter 5, *Hostile Environments* (Joe Suniga, ICP)
    Chapter 6, *Personnel Qualifications and Training* (Dana Morgan, Hanford)
    Chapter 7, *Overhead and Gantry Cranes* (Mike Cutshall, SRS; Claude Robison, ORNL)
    Chapter 8, *Hoists* (Steve Kane, John Hynan, BNL)
    Chapter 9, *Mobile Cranes* (Dana Morgan, Hanford; John Reed, LLNL)
    Chapter 10, *Forklift Trucks* (Mike Baxley, Pantex)
    Chapter 11, *Wire Rope and Slings* (Mike Viola, PPPL)
    Chapter 12, *Rigging Accessories* (Mac McMillan, INL; Claude Robison, ORNL)
    Chapter 13, *Load Hooks* (Mac McMillan, INL; Claude Robison, ORNL)
    Chapter 14, *Below-the-Hook Lifting Devices* (Steve Kane, BNL; Claude Robison)
    Chapter 15, *Construction Hoisting and Rigging Equipment Requirements* (Lynn Holt, INL)
    Chapter 16, *Miscellaneous Lifting Devices* (John Reed, LLNL)
    Appendix A, *Procurement Guidelines* (Ken Richter, Y-12)

    Should other committee members wish to assist these individuals in their respective reviews, please contact the responsible party directly and inform Mr. Finn accordingly. Committee members were encouraged to commence these reviews as soon as practicable.

18. After a brief period of open discussion, the meeting was adjourned.